

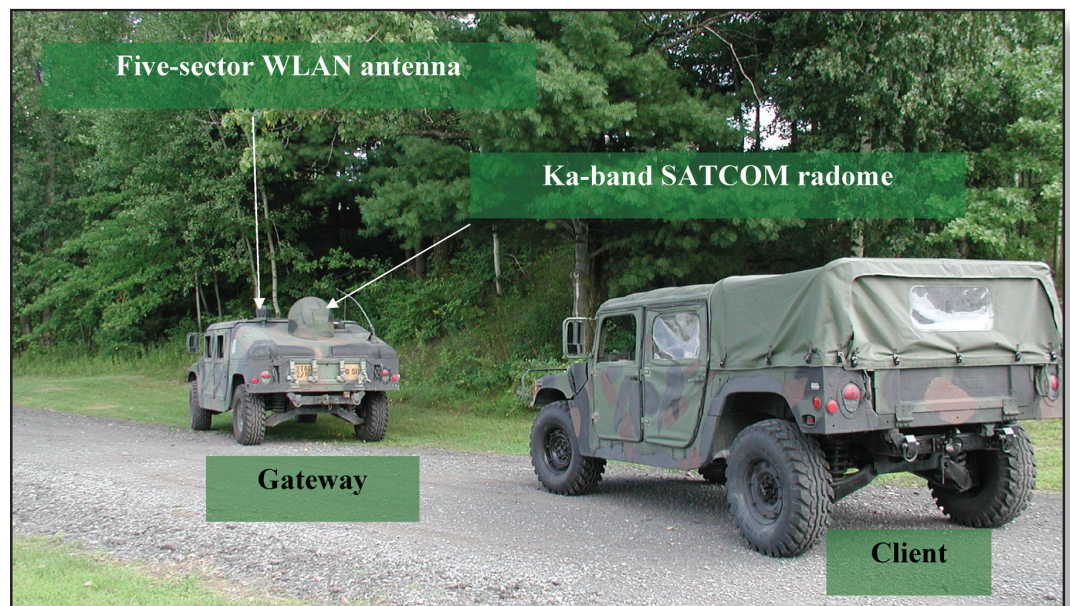


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Science and Technology for Tomorrow's Air and Space Force

Success Story

INFORMATION DIRECTORATE DEMONSTRATES PROTECTED TACTICAL WIRELESS LAN SATCOM GATEWAY



The Information Directorate demonstrated a mobile wireless local area network (WLAN) satellite communications (SATCOM) gateway during the PHOENIX WARRIOR EXERCISE in Fort Drum, New York. The gateway features special technology to enhance information assurance (IA) and provides a protected wireless connectivity footprint at deployed locations.

The mobile Ka-band SATCOM terminal provides automatic acquisition and tracking over varying terrain, acceleration, and speed via a gimbaled 24 in. dish under a radome on the back of a highly mobile multipurpose wheeled vehicle (HMMWV). The gateway interface supports standard networking equipment, and rates up to and including T1 (digital transmission line, 1.544 MB per second, 24 voice channels) can be achieved.



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Accomplishment

The WLAN portion of the system comprises a commercial off-the-shelf wireless access point (AP) augmented with a unique five-sector adaptable antenna and the directorate's wireless intrusion detection sensor (WIDS). Additional security enhancements in the system include a firewall, robust mutual authentication, strong encryption, and virtual private network security over the wireless link.

The unique five-sector antenna enables the system to isolate anomalies indicative of a wireless attacker identified by WIDS while striving to maintain network connectivity for legitimate users. The adaptable antenna can also be used to physically limit coverage to those areas where it is only needed.

Background

The gateway system comprises two essential elements that together provide untethered multiuser access within the system footprint and long-haul reach back to distant networks. First, the WLAN AP, combined with specialized antennas and IA mechanisms, provides high-speed local coverage to clients near the gateway vehicle. Second, a vehicle-mounted mobile Ka-band SATCOM terminal provides a wideband, full-duplex data pipe back to a distant ground station having connectivity to national infrastructure.

Both of these services are useable by clients within a vehicle group or convoy while on the move, at intermittent stopping points along the mission route, or in a stationary encampment. The individual subsystems are integrated and housed on a standard HMMWV that provides a stand-alone, drive-away capability.

Information
Support to the Warfighter

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (04-IF-01)